SEQUENCE LISTING

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<120> A PROCESS FOR IN VITRO DIFFERENTIATION OF NEURAL STEM CELLS OR OF CELLS DERIVED FROM NEURONAL STEM CELLS

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<151> 2004-12-23

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<151> 2003-12-23

<160> 12

<170> PatentIn Ver. 3.3

<210> 1
<211> 781
<212> PRT
<213> Homo sapiens

<400> 1

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Met Ala Thr Gln Ala Asp Leu Met Glu Leu Asp Met Ala Met Glu Pro
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Asp Arg Lys Ala Ala Val Ser His Trp Gln Gln Gln Ser Tyr Leu Asp
             20                  25                  30

Ser Gly Ile His Ser Gly Ala Thr Thr Thr Ala Pro Ser Leu Ser Gly
         35                  40                  45

Lys Gly Asn Pro Glu Glu Glu Asp Val Asp Thr Ser Gln Val Leu Tyr
     50                  55                  60

Glu Trp Glu Gln Gly Phe Ser Gln Ser Phe Thr Gln Glu Gln Val Ala
 65                  70                  75                  80

Asp Ile Asp Gly Gln Tyr Ala Met Thr Arg Ala Gln Arg Val Arg Ala
                 85                  90                  95

Ala Met Phe Pro Glu Thr Leu Asp Glu Gly Met Gln Ile Pro Ser Thr
            100                 105                 110

Gln Phe Asp Ala Ala His Pro Thr Asn Val Gln Arg Leu Ala Glu Pro
        115                 120                 125

Ser Gln Met Leu Lys His Ala Val Val Asn Leu Ile Asn Tyr Gln Asp
    130                 135                 140
```

```
Asp Ala Glu Leu Ala Thr Arg Ala Ile Pro Glu Leu Thr Lys Leu Leu
145                 150                 155                 160

Asn Asp Glu Asp Gln Val Val Val Asn Lys Ala Ala Val Met Val His
                165                 170                 175

Gln Leu Ser Lys Lys Glu Ala Ser Arg His Ala Ile Met Arg Ser Pro
            180                 185                 190

Gln Met Val Ser Ala Ile Val Arg Thr Met Gln Asn Thr Asn Asp Val
        195                 200                 205

Glu Thr Ala Arg Cys Thr Ala Gly Thr Leu His Asn Leu Ser His His
    210                 215                 220

Arg Glu Gly Leu Leu Ala Ile Phe Lys Ser Gly Gly Ile Pro Ala Leu
225                 230                 235                 240

Val Lys Met Leu Gly Ser Pro Val Asp Ser Val Leu Phe Tyr Ala Ile
                245                 250                 255

Thr Thr Leu His Asn Leu Leu Leu His Gln Glu Gly Ala Lys Met Ala
            260                 265                 270

Val Arg Leu Ala Gly Gly Leu Gln Lys Met Val Ala Leu Leu Asn Lys
        275                 280                 285

Thr Asn Val Lys Phe Leu Ala Ile Thr Thr Asp Cys Leu Gln Ile Leu
    290                 295                 300

Ala Tyr Gly Asn Gln Glu Ser Lys Leu Ile Ile Leu Ala Ser Gly Gly
305                 310                 315                 320

Pro Gln Ala Leu Val Asn Ile Met Arg Thr Tyr Thr Tyr Glu Lys Leu
                325                 330                 335

Leu Trp Thr Thr Ser Arg Val Leu Lys Val Leu Ser Val Cys Ser Ser
            340                 345                 350

Asn Lys Pro Ala Ile Val Glu Ala Gly Gly Met Gln Ala Leu Gly Leu
        355                 360                 365

His Leu Thr Asp Pro Ser Gln Arg Leu Val Gln Asn Cys Leu Trp Thr
    370                 375                 380

Leu Arg Asn Leu Ser Asp Ala Ala Thr Lys Gln Glu Gly Met Glu Gly
385                 390                 395                 400

Leu Leu Gly Thr Leu Val Gln Leu Leu Gly Ser Asp Asp Ile Asn Val
                405                 410                 415

Val Thr Cys Ala Ala Gly Ile Leu Ser Asn Leu Thr Cys Asn Asn Tyr
            420                 425                 430

Lys Asn Lys Met Met Val Cys Gln Val Gly Gly Ile Glu Ala Leu Val
        435                 440                 445
```

```
Arg Thr Val Leu Arg Ala Gly Asp Arg Glu Asp Ile Thr Glu Pro Ala
    450                 455                 460

Ile Cys Ala Leu Arg His Leu Thr Ser Arg His Gln Glu Ala Glu Met
465                 470                 475                 480

Ala Gln Asn Ala Val Arg Leu His Tyr Gly Leu Pro Val Val Val Lys
                485                 490                 495

Leu Leu His Pro Pro Ser His Trp Pro Leu Ile Lys Ala Thr Val Gly
            500                 505                 510

Leu Ile Arg Asn Leu Ala Leu Cys Pro Ala Asn His Ala Pro Leu Arg
        515                 520                 525

Glu Gln Gly Ala Ile Pro Arg Leu Val Gln Leu Leu Val Arg Ala His
    530                 535                 540

Gln Asp Thr Gln Arg Arg Thr Ser Met Gly Gly Thr Gln Gln Gln Phe
545                 550                 555                 560

Val Glu Gly Val Arg Met Glu Glu Ile Val Glu Gly Cys Thr Gly Ala
                565                 570                 575

Leu His Ile Leu Ala Arg Asp Val His Asn Arg Ile Val Ile Arg Gly
            580                 585                 590

Leu Asn Thr Ile Pro Leu Phe Val Gln Leu Leu Tyr Ser Pro Ile Glu
        595                 600                 605

Asn Ile Gln Arg Val Ala Ala Gly Val Leu Cys Glu Leu Ala Gln Asp
    610                 615                 620

Lys Glu Ala Ala Glu Ala Ile Glu Ala Glu Gly Ala Thr Ala Pro Leu
625                 630                 635                 640

Thr Glu Leu Leu His Ser Arg Asn Glu Gly Val Ala Thr Tyr Ala Ala
                645                 650                 655

Ala Val Leu Phe Arg Met Ser Glu Asp Lys Pro Gln Asp Tyr Lys Lys
            660                 665                 670

Arg Leu Ser Val Glu Leu Thr Ser Ser Leu Phe Arg Thr Glu Pro Met
        675                 680                 685

Ala Trp Asn Glu Thr Ala Asp Leu Gly Leu Asp Ile Gly Ala Gln Gly
    690                 695                 700

Glu Pro Leu Gly Tyr Arg Gln Asp Asp Pro Ser Tyr Arg Ser Phe His
705                 710                 715                 720

Ser Gly Gly Tyr Gly Gln Asp Ala Leu Gly Met Asp Pro Met Met Glu
                725                 730                 735

His Glu Met Gly Gly His His Pro Gly Ala Asp Tyr Pro Val Asp Gly
            740                 745                 750
```

```
Leu Pro Asp Leu Gly His Ala Gln Asp Leu Met Asp Gly Leu Pro Pro
        755                 760                 765

Gly Asp Ser Asn Gln Leu Ala Trp Phe Asp Thr Asp Leu
    770                 775                 780


<210> 2
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<212> PRT
<213> Homo sapiens

<400> 2
Met Ser Gly Arg Pro Arg Thr Thr Ser Phe Ala Glu Ser Cys Lys Pro
  1               5                  10                  15

Val Gln Gln Pro Ser Ala Phe Gly Ser Met Lys Val Ser Arg Asp Lys
            20                  25                  30

Asp Gly Ser Lys Val Thr Thr Val Val Ala Thr Pro Gly Gln Gly Pro
         35                  40                  45

Asp Arg Pro Gln Glu Val Ser Tyr Thr Asp Thr Lys Val Ile Gly Asn
     50                  55                  60

Gly Ser Phe Gly Val Val Tyr Gln Ala Lys Leu Cys Asp Ser Gly Glu
 65                  70                  75                  80

Leu Val Ala Ile Lys Lys Val Leu Gln Asp Lys Arg Phe Lys Asn Arg
                85                  90                  95

Glu Leu Gln Ile Met Arg Lys Leu Asp His Cys Asn Ile Val Arg Leu
            100                 105                 110

Arg Tyr Phe Phe Tyr Ser Ser Gly Glu Lys Lys Asp Glu Val Tyr Leu
        115                 120                 125

Asn Leu Val Leu Asp Tyr Val Pro Glu Thr Val Tyr Arg Val Ala Arg
    130                 135                 140

His Tyr Ser Arg Ala Lys Gln Thr Leu Pro Val Ile Tyr Val Lys Leu
145                 150                 155                 160

Tyr Met Tyr Gln Leu Phe Arg Ser Leu Ala Tyr Ile His Ser Phe Gly
                165                 170                 175

Ile Cys His Arg Asp Ile Lys Pro Gln Asn Leu Leu Leu Asp Pro Asp
            180                 185                 190

Thr Ala Val Leu Lys Leu Cys Asp Phe Gly Ser Ala Lys Gln Leu Val
        195                 200                 205

Arg Gly Glu Pro Asn Val Ser Tyr Ile Cys Ser Arg Tyr Tyr Arg Ala
    210                 215                 220

Pro Glu Leu Ile Phe Gly Ala Thr Asp Tyr Thr Ser Ser Ile Asp Val
225                 230                 235                 240
```

```
Trp Ser Ala Gly Cys Val Leu Ala Glu Leu Leu Leu Gly Gln Pro Ile
                245                 250                 255

Phe Pro Gly Asp Ser Gly Val Asp Gln Leu Val Glu Ile Ile Lys Val
            260                 265                 270

Leu Gly Thr Pro Thr Arg Glu Gln Ile Arg Glu Met Asn Pro Asn Tyr
        275                 280                 285

Thr Glu Phe Lys Phe Pro Gln Ile Lys Ala His Pro Trp Thr Lys Val
    290                 295                 300

Phe Arg Pro Arg Thr Pro Pro Glu Ala Ile Ala Leu Cys Ser Arg Leu
305                 310                 315                 320

Leu Glu Tyr Thr Pro Thr Ala Arg Leu Thr Pro Leu Glu Ala Cys Ala
                325                 330                 335

His Ser Phe Phe Asp Glu Leu Arg Asp Pro Asn Val Lys Leu Pro Asn
            340                 345                 350

Gly Arg Asp Thr Pro Ala Leu Phe Asn Phe Thr Thr Gln Glu Leu Ser
        355                 360                 365

Ser Asn Pro Pro Leu Ala Thr Ile Leu Ile Pro Pro His Ala Arg Ile
    370                 375                 380

Gln Ala Ala Ala Ser Thr Pro Thr Asn Ala Thr Ala Ala Ser Asp Ala
385                 390                 395                 400

Asn Thr Gly Asp Arg Gly Gln Thr Asn Asn Ala Ala Ser Ala Ser Ala
                405                 410                 415

Ser Asn Ser Thr
            420
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<210> 3
<211> 648
<212> PRT
<213> Homo sapiens

<400> 3

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Met Ala Glu Glu Glu Ala Pro Lys Lys Ser Arg Ala Ala Gly Gly Gly
  1               5                  10                  15

Ala Ser Trp Glu Leu Cys Ala Gly Ala Leu Ser Ala Arg Leu Ala Glu
             20                  25                  30

Glu Gly Ser Gly Asp Ala Gly Gly Arg Arg Arg Pro Pro Val Asp Pro
         35                  40                  45

Arg Arg Leu Ala Arg Gln Leu Leu Leu Leu Leu Trp Leu Leu Glu Ala
     50                  55                  60

Pro Leu Leu Leu Gly Val Arg Ala Gln Ala Ala Gly Gln Gly Pro Gly
 65                  70                  75                  80
```

```
Gln Gly Pro Gly Pro Gly Gln Gln Pro Pro Pro Pro Pro Gln Gln
                 85                  90                  95

Gln Gln Ser Gly Gln Gln Tyr Asn Gly Glu Arg Gly Ile Ser Val Pro
            100                 105                 110

Asp His Gly Tyr Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile
        115                 120                 125

Ala Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr Asn Gln
    130                 135                 140

Glu Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val
145                 150                 155                 160

Gln Cys Ser Ala Glu Leu Lys Phe Phe Leu Cys Ser Met Tyr Ala Pro
                165                 170                 175

Val Cys Thr Val Leu Glu Gln Ala Leu Pro Pro Cys Arg Ser Leu Cys
            180                 185                 190

Glu Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe
        195                 200                 205

Gln Trp Pro Asp Thr Leu Lys Cys Glu Lys Phe Pro Val His Gly Ala
    210                 215                 220

Gly Glu Leu Cys Val Gly Gln Asn Thr Ser Asp Lys Gly Thr Pro Thr
225                 230                 235                 240

Pro Ser Leu Leu Pro Glu Phe Trp Thr Ser Asn Pro Gln His Gly Gly
                245                 250                 255

Gly Gly His Arg Gly Gly Phe Pro Gly Gly Ala Gly Ala Ser Glu Arg
            260                 265                 270

Gly Lys Phe Ser Cys Pro Arg Ala Leu Lys Val Pro Ser Tyr Leu Asn
        275                 280                 285

Tyr His Phe Leu Gly Glu Lys Asp Cys Gly Ala Pro Cys Glu Pro Thr
    290                 295                 300

Lys Val Tyr Gly Leu Met Tyr Phe Gly Pro Glu Glu Leu Arg Phe Ser
305                 310                 315                 320

Arg Thr Trp Ile Gly Ile Trp Ser Val Leu Cys Cys Ala Ser Thr Leu
                325                 330                 335

Phe Thr Val Leu Thr Tyr Leu Val Asp Met Arg Arg Phe Ser Tyr Pro
            340                 345                 350

Glu Arg Pro Ile Ile Phe Leu Ser Gly Cys Tyr Thr Ala Val Ala Val
        355                 360                 365

Ala Tyr Ile Ala Gly Phe Leu Leu Glu Asp Arg Val Val Cys Asn Asp
    370                 375                 380
```

```
Lys Phe Ala Glu Asp Gly Ala Arg Thr Val Ala Gln Gly Thr Lys Lys
385                 390                 395                 400

Glu Gly Cys Thr Ile Leu Phe Met Met Leu Tyr Phe Phe Ser Met Ala
                405                 410                 415

Ser Ser Ile Trp Trp Val Ile Leu Ser Leu Thr Trp Phe Leu Ala Ala
            420                 425                 430

Gly Met Lys Trp Gly His Glu Ala Ile Glu Ala Asn Ser Gln Tyr Phe
        435                 440                 445

His Leu Ala Ala Trp Ala Val Pro Ala Ile Lys Thr Ile Thr Ile Leu
    450                 455                 460

Ala Leu Gly Gln Val Asp Gly Asp Val Leu Ser Gly Val Cys Phe Val
465                 470                 475                 480

Gly Leu Asn Asn Val Asp Ala Leu Arg Gly Phe Val Leu Ala Pro Leu
                485                 490                 495

Phe Val Tyr Leu Phe Ile Gly Thr Ser Phe Leu Leu Ala Gly Phe Val
            500                 505                 510

Ser Leu Phe Arg Ile Arg Thr Ile Met Lys His Asp Gly Thr Lys Thr
        515                 520                 525

Glu Lys Leu Glu Lys Leu Met Val Arg Ile Gly Val Phe Ser Val Leu
    530                 535                 540

Tyr Thr Val Pro Ala Thr Ile Val Ile Ala Cys Tyr Phe Tyr Glu Gln
545                 550                 555                 560

Ala Phe Arg Asp Gln Trp Glu Arg Ser Trp Val Ala Gln Ser Cys Lys
                565                 570                 575

Ser Tyr Ala Ile Pro Cys Pro His Leu Gln Ala Gly Gly Gly Ala Pro
            580                 585                 590

Pro His Pro Pro Met Ser Pro Asp Phe Thr Val Phe Met Ile Lys Tyr
        595                 600                 605

Leu Met Thr Leu Ile Val Gly Ile Thr Ser Gly Phe Trp Ile Trp Ser
    610                 615                 620

Gly Lys Thr Leu Asn Ser Trp Arg Lys Phe Tyr Thr Arg Leu Thr Asn
625                 630                 635                 640

Ser Lys Gln Gly Glu Thr Thr Val
                645
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<210> 4
<211> 565
<212> PRT
<213> Homo sapiens

<400> 4

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Met Arg Pro Arg Ser Ala Leu Pro Arg Leu Leu Leu Pro Leu Leu Leu
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Leu Pro Ala Ala Gly Pro Ala Gln Phe His Gly Glu Lys Gly Ile Ser
            20                  25                  30

Ile Pro Asp His Gly Phe Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr
        35                  40                  45

Asp Ile Ala Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr
    50                  55                  60

Asn Gln Glu Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val
65                  70                  75                  80

Lys Val Gln Cys Ser Pro Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr
                85                  90                  95

Ala Pro Val Cys Thr Val Leu Glu Gln Ala Ile Pro Pro Cys Arg Ser
            100                 105                 110

Ile Cys Glu Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe
        115                 120                 125

Gly Phe Gln Trp Pro Glu Arg Leu Arg Cys Glu His Phe Pro Arg His
    130                 135                 140

Gly Ala Glu Gln Ile Cys Val Gly Gln Asn His Ser Glu Asp Gly Ala
145                 150                 155                 160

Pro Ala Leu Leu Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro Gly Ala
                165                 170                 175

Gly Gly Thr Pro Gly Gly Pro Gly Gly Gly Gly Ala Pro Pro Arg Tyr
            180                 185                 190

Ala Thr Leu Glu His Pro Phe His Cys Pro Arg Val Leu Lys Val Pro
        195                 200                 205

Ser Tyr Leu Ser Tyr Lys Phe Leu Gly Glu Arg Asp Cys Ala Ala Pro
    210                 215                 220

Cys Glu Pro Ala Arg Pro Asp Gly Ser Met Phe Phe Ser Gln Glu Glu
225                 230                 235                 240

Thr Arg Phe Ala Arg Leu Trp Ile Leu Thr Trp Ser Val Leu Cys Cys
                245                 250                 255

Ala Ser Thr Phe Phe Thr Val Thr Thr Tyr Leu Val Asp Met Gln Arg
            260                 265                 270

Phe Arg Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Gly Cys Tyr Thr
        275                 280                 285

Met Val Ser Val Ala Tyr Ile Ala Gly Phe Val Leu Gln Glu Arg Val
    290                 295                 300
```

```
Val Cys Asn Glu Arg Phe Ser Glu Asp Gly Tyr Arg Thr Val Val Gln
305                 310                 315                 320

Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu Phe Met Met Leu Tyr Phe
                325                 330                 335

Phe Ser Met Ala Ser Ser Ile Trp Trp Val Ile Leu Ser Leu Thr Trp
            340                 345                 350

Phe Leu Ala Ala Gly Met Lys Trp Gly His Glu Ala Ile Glu Ala Asn
        355                 360                 365

Ser Gln Tyr Phe His Leu Ala Ala Trp Ala Val Pro Ala Val Lys Thr
    370                 375                 380

Ile Thr Ile Leu Ala Met Gly Gln Ile Asp Gly Asp Leu Leu Ser Gly
385                 390                 395                 400

Val Cys Phe Val Gly Leu Asn Ser Leu Asp Pro Leu Arg Gly Phe Val
                405                 410                 415

Leu Ala Pro Leu Phe Val Tyr Leu Phe Ile Gly Thr Ser Phe Leu Leu
            420                 425                 430

Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Thr Ile Met Lys His Asp
        435                 440                 445

Gly Thr Lys Thr Glu Lys Leu Glu Arg Leu Met Val Arg Ile Gly Val
    450                 455                 460

Phe Ser Val Leu Tyr Thr Val Pro Ala Thr Ile Val Ile Ala Cys Tyr
465                 470                 475                 480

Phe Tyr Glu Gln Ala Phe Arg Glu His Trp Glu Arg Ser Trp Val Ser
                485                 490                 495

Gln His Cys Lys Ser Leu Ala Ile Pro Cys Pro Ala His Tyr Thr Pro
            500                 505                 510

Arg Met Ser Pro Asp Phe Thr Val Tyr Met Ile Lys Tyr Leu Met Thr
        515                 520                 525

Leu Ile Val Gly Ile Thr Ser Gly Phe Trp Ile Trp Ser Gly Lys Thr
    530                 535                 540

Leu His Ser Trp Arg Lys Phe Tyr Thr Arg Leu Thr Asn Ser Arg His
545                 550                 555                 560

Gly Glu Thr Thr Val
                565
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<210> 5
<211> 666
<212> PRT
<213> Homo sapiens

<400> 5

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Met Ala Met Thr Trp Ile Val Phe Ser Leu Trp Pro Leu Thr Val Phe
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Met Gly His Ile Gly Gly His Ser Leu Phe Ser Cys Glu Pro Ile Thr
             20                  25                  30

Leu Arg Met Cys Gln Asp Leu Pro Tyr Asn Thr Thr Phe Met Pro Asn
          35                  40                  45

Leu Leu Asn His Tyr Asp Gln Gln Thr Ala Ala Leu Ala Met Glu Pro
      50                  55                  60

Phe His Pro Met Val Asn Leu Asp Cys Ser Arg Asp Phe Arg Pro Phe
 65                  70                  75                  80

Leu Cys Ala Leu Tyr Ala Pro Ile Cys Met Glu Tyr Gly Arg Val Thr
                 85                  90                  95

Leu Pro Cys Arg Arg Leu Cys Gln Arg Ala Tyr Ser Glu Cys Ser Lys
            100                 105                 110

Leu Met Glu Met Phe Gly Val Pro Trp Pro Glu Asp Met Glu Cys Ser
        115                 120                 125

Arg Phe Pro Asp Cys Asp Glu Pro Tyr Pro Arg Leu Val Asp Leu Asn
    130                 135                 140

Leu Ala Gly Glu Pro Thr Glu Gly Ala Pro Val Ala Val Gln Arg Asp
145                 150                 155                 160

Tyr Gly Phe Trp Cys Pro Arg Glu Leu Lys Ile Asp Pro Asp Leu Gly
                165                 170                 175

Tyr Ser Phe Leu His Val Arg Asp Cys Ser Pro Pro Cys Pro Asn Met
            180                 185                 190

Tyr Phe Arg Arg Glu Glu Leu Ser Phe Ala Arg Tyr Phe Ile Gly Leu
        195                 200                 205

Ile Ser Ile Ile Cys Leu Ser Ala Thr Leu Phe Thr Phe Leu Thr Phe
    210                 215                 220

Leu Ile Asp Val Thr Arg Phe Arg Tyr Pro Glu Arg Pro Ile Ile Phe
225                 230                 235                 240

Tyr Ala Val Cys Tyr Met Met Val Ser Leu Ile Phe Phe Ile Gly Phe
                245                 250                 255

Leu Leu Glu Asp Arg Val Ala Cys Asn Ala Ser Ile Pro Ala Gln Tyr
            260                 265                 270

Lys Ala Ser Thr Val Thr Gln Gly Ser His Asn Lys Ala Cys Thr Met
        275                 280                 285

Leu Phe Met Ile Leu Tyr Phe Phe Thr Met Ala Gly Ser Val Trp Trp
    290                 295                 300
```

```
Val Ile Leu Thr Ile Thr Trp Phe Leu Ala Ala Val Pro Lys Trp Gly
305                 310                 315                 320

Ser Glu Ala Ile Glu Lys Lys Ala Leu Leu Phe His Ala Ser Ala Trp
                325                 330                 335

Gly Ile Pro Gly Thr Leu Thr Ile Ile Leu Leu Ala Met Asn Lys Ile
            340                 345                 350

Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu Tyr Asp Val
        355                 360                 365

Asp Ala Leu Arg Tyr Phe Val Leu Ala Pro Leu Cys Leu Tyr Val Val
    370                 375                 380

Val Gly Val Ser Leu Leu Leu Ala Gly Ile Ile Ser Leu Asn Arg Val
385                 390                 395                 400

Arg Ile Glu Ile Pro Leu Glu Lys Glu Asn Gln Asp Lys Leu Val Lys
                405                 410                 415

Phe Met Ile Arg Ile Gly Val Phe Ser Ile Leu Tyr Leu Val Pro Leu
            420                 425                 430

Leu Val Val Ile Gly Cys Tyr Phe Tyr Glu Gln Ala Tyr Arg Gly Ile
        435                 440                 445

Trp Glu Thr Thr Trp Ile Gln Glu Arg Cys Arg Glu Tyr His Ile Pro
    450                 455                 460

Cys Pro Tyr Gln Val Thr Gln Met Ser Arg Pro Asp Leu Ile Leu Phe
465                 470                 475                 480

Leu Met Lys Tyr Leu Met Ala Leu Ile Val Gly Ile Pro Ser Val Phe
                485                 490                 495

Trp Val Gly Ser Lys Lys Thr Cys Phe Glu Trp Ala Ser Phe Phe His
            500                 505                 510

Gly Arg Arg Lys Lys Glu Ile Val Asn Glu Ser Arg Gln Val Leu Gln
        515                 520                 525

Glu Pro Asp Phe Ala Gln Ser Leu Leu Arg Asp Pro Asn Thr Pro Ile
    530                 535                 540

Ile Arg Lys Ser Arg Gly Thr Ser Thr Gln Gly Thr Ser Thr His Ala
545                 550                 555                 560

Ser Ser Thr Gln Leu Ala Met Val Asp Asp Gln Arg Ser Lys Ala Gly
                565                 570                 575

Ser Ile His Ser Lys Val Ser Ser Tyr His Gly Ser Leu His Arg Ser
            580                 585                 590

Arg Asp Gly Arg Tyr Thr Pro Cys Ser Tyr Arg Gly Met Glu Glu Arg
        595                 600                 605
```

```
Leu Pro His Gly Ser Met Ser Arg Leu Thr Asp His Ser Arg His Ser
    610                 615                 620

Ser Ser His Arg Leu Asn Glu Gln Ser Arg His Ser Ser Ile Arg Asp
625                 630                 635                 640

Leu Ser Asn Asn Pro Met Thr His Ile Thr His Gly Thr Ser Met Asn
                645                 650                 655

Arg Val Ile Glu Glu Asp Gly Thr Ser Ala
            660                 665


<210> 6
<211> 537
<212> PRT
<213> Homo sapiens

<400> 6
Met Ala Trp Arg Gly Ala Gly Pro Ser Val Pro Gly Ala Pro Gly Gly
  1               5                  10                  15

Val Gly Leu Ser Leu Gly Leu Leu Leu Gln Leu Leu Leu Leu Leu Gly
             20                  25                  30

Pro Ala Arg Gly Phe Gly Asp Glu Glu Glu Arg Arg Cys Asp Pro Ile
         35                  40                  45

Arg Ile Ser Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro
     50                  55                  60

Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr
 65                  70                  75                  80

Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe
                85                  90                  95

Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile
            100                 105                 110

Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arg Arg Cys
        115                 120                 125

Glu Pro Val Leu Lys Glu Phe Gly Phe Ala Trp Pro Glu Ser Leu Asn
    130                 135                 140

Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu
145                 150                 155                 160

Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Ile Gln
                165                 170                 175

Pro Gly Glu Glu Cys His Ser Val Gly Thr Asn Ser Asp Gln Tyr Ile
            180                 185                 190

Trp Val Lys Arg Ser Leu Asn Cys Val Leu Lys Cys Gly Tyr Asp Ala
        195                 200                 205
```

```
Gly Leu Tyr Ser Arg Ser Ala Lys Glu Phe Thr Asp Ile Trp Met Ala
    210                 215                 220

Val Trp Ala Ser Leu Cys Phe Ile Ser Thr Ala Phe Thr Val Leu Thr
225                 230                 235                 240

Phe Leu Ile Asp Ser Ser Arg Phe Ser Tyr Pro Glu Arg Pro Ile Ile
                245                 250                 255

Phe Leu Ser Met Cys Tyr Asn Ile Tyr Ser Ile Ala Tyr Ile Val Arg
            260                 265                 270

Leu Thr Val Gly Arg Glu Arg Ile Ser Cys Asp Phe Glu Glu Ala Ala
        275                 280                 285

Glu Pro Val Leu Ile Gln Glu Gly Leu Lys Asn Thr Gly Cys Ala Ile
    290                 295                 300

Ile Phe Leu Leu Met Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp
305                 310                 315                 320

Val Ile Leu Thr Leu Thr Trp Phe Leu Ala Ala Gly Leu Lys Trp Gly
                325                 330                 335

His Glu Ala Ile Glu Met His Ser Ser Tyr Phe His Ile Ala Ala Trp
            340                 345                 350

Ala Ile Pro Ala Val Lys Thr Ile Val Ile Leu Ile Met Arg Leu Val
        355                 360                 365

Asp Ala Asp Glu Leu Thr Gly Leu Cys Tyr Val Gly Asn Gln Asn Leu
    370                 375                 380

Asp Ala Leu Thr Gly Phe Val Val Ala Pro Leu Phe Thr Tyr Leu Val
385                 390                 395                 400

Ile Gly Thr Leu Phe Ile Ala Ala Gly Leu Val Ala Leu Phe Lys Ile
                405                 410                 415

Arg Ser Asn Leu Gln Lys Asp Gly Thr Lys Thr Asp Lys Leu Glu Arg
            420                 425                 430

Leu Met Val Lys Ile Gly Val Phe Ser Val Leu Tyr Thr Val Pro Ala
        435                 440                 445

Thr Cys Val Ile Ala Cys Tyr Phe Tyr Glu Ile Ser Asn Trp Ala Leu
    450                 455                 460

Phe Arg Tyr Ser Ala Asp Asp Ser Asn Met Ala Val Glu Met Leu Lys
465                 470                 475                 480

Thr Phe Met Ser Leu Leu Val Gly Ile Thr Ser Gly Met Trp Ile Trp
                485                 490                 495

Ser Ala Lys Ser Leu His Thr Trp Gln Lys Cys Ser Asn Arg Leu Val
            500                 505                 510
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```
Asn Ser Gly Lys Val Lys Arg Glu Lys Arg Gly Asn Gly Trp Val Lys
        515                 520                 525

Pro Gly Lys Gly Ser Glu Thr Val Val
    530                 535
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<210> 7
<211> 585
<212> PRT
<213> Homo sapiens

<400> 7

```
Met Ala Arg Pro Asp Pro Ser Ala Pro Pro Ser Leu Leu Leu Leu Leu
  1               5                  10                  15

Leu Ala Gln Leu Val Gly Arg Ala Ala Ala Ala Ser Lys Ala Pro Val
            20                  25                  30

Cys Gln Glu Ile Thr Val Pro Met Cys Arg Gly Ile Gly Tyr Asn Leu
        35                  40                  45

Thr His Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu Ala Gly
    50                  55                  60

Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys Ser Pro
65                  70                  75                  80

Asp Leu Arg Phe Phe Leu Cys Thr Met Tyr Thr Pro Ile Cys Leu Pro
                85                  90                  95

Asp Tyr His Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu Arg Ala
            100                 105                 110

Lys Ala Gly Cys Ser Pro Leu Met Arg Gln Tyr Gly Phe Ala Trp Pro
        115                 120                 125

Glu Arg Met Ser Cys Asp Arg Leu Pro Val Leu Gly Arg Asp Ala Glu
    130                 135                 140

Val Leu Cys Met Asp Tyr Asn Arg Ser Glu Ala Thr Thr Ala Pro Pro
145                 150                 155                 160

Arg Pro Phe Pro Ala Lys Pro Thr Leu Pro Gly Pro Pro Gly Ala Pro
                165                 170                 175

Ala Ser Gly Gly Glu Cys Pro Ala Gly Gly Pro Phe Val Cys Lys Cys
            180                 185                 190

Arg Glu Pro Phe Val Pro Ile Leu Lys Glu Ser His Pro Leu Tyr Asn
        195                 200                 205

Lys Val Arg Thr Gly Gln Val Pro Asn Cys Ala Val Pro Cys Tyr Gln
    210                 215                 220

Pro Ser Phe Ser Ala Asp Glu Arg Thr Phe Ala Thr Phe Trp Ile Gly
225                 230                 235                 240
```

```
Leu Trp Ser Val Leu Cys Phe Ile Ser Thr Ser Thr Thr Val Ala Thr
                245                 250                 255

Phe Leu Ile Asp Met Asp Thr Phe Arg Tyr Pro Glu Arg Pro Ile Ile
            260                 265                 270

Phe Leu Ser Ala Cys Tyr Leu Cys Val Ser Leu Gly Phe Leu Val Arg
        275                 280                 285

Leu Val Val Gly His Ala Ser Val Ala Cys Ser Arg Glu His Asn His
    290                 295                 300

Ile His Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr Ile Val Phe Leu
305                 310                 315                 320

Leu Val Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp Val Ile Leu
                325                 330                 335

Ser Leu Thr Trp Phe Leu Ala Ala Ala Met Lys Trp Gly Asn Glu Ala
            340                 345                 350

Ile Ala Gly Tyr Gly Gln Tyr Phe His Leu Ala Ala Trp Leu Ile Pro
        355                 360                 365

Ser Val Lys Ser Ile Thr Ala Leu Ala Leu Ser Ser Val Asp Gly Asp
    370                 375                 380

Pro Val Ala Gly Ile Cys Tyr Val Gly Asn Gln Asn Leu Asn Ser Leu
385                 390                 395                 400

Arg Arg Phe Val Leu Gly Pro Leu Val Leu Tyr Leu Leu Val Gly Thr
                405                 410                 415

Leu Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Ser Val
            420                 425                 430

Ile Lys Gln Gly Gly Thr Lys Thr Asp Lys Leu Glu Lys Leu Met Ile
        435                 440                 445

Arg Ile Gly Ile Phe Thr Leu Leu Tyr Thr Val Pro Ala Ser Ile Val
    450                 455                 460

Val Ala Cys Tyr Leu Tyr Glu Gln His Tyr Arg Glu Ser Trp Glu Ala
465                 470                 475                 480

Ala Leu Thr Cys Ala Cys Pro Gly His Asp Thr Gly Gln Pro Arg Ala
                485                 490                 495

Lys Pro Glu Tyr Trp Val Leu Met Leu Lys Tyr Phe Met Cys Leu Val
            500                 505                 510

Val Gly Ile Thr Ser Gly Val Trp Ile Trp Ser Gly Lys Thr Val Glu
        515                 520                 525

Ser Trp Arg Arg Phe Thr Ser Arg Cys Cys Cys Arg Pro Arg Arg Gly
    530                 535                 540
```

```
His Lys Ser Gly Gly Ala Met Ala Ala Gly Asp Tyr Pro Glu Ala Ser
545                 550                 555                 560

Ala Ala Leu Thr Gly Arg Thr Gly Pro Pro Gly Pro Ala Ala Thr Tyr
                565                 570                 575

His Lys Gln Val Ser Leu Ser His Val
            580                 585
```

<210> 8
<211> 706
<212> PRT
<213> Homo sapiens

<400> 8

```
Met Glu Met Phe Thr Phe Leu Leu Thr Cys Ile Phe Leu Pro Leu Leu
  1               5                  10                  15

Arg Gly His Ser Leu Phe Thr Cys Glu Pro Ile Thr Val Pro Arg Cys
             20                  25                  30

Met Lys Met Ala Tyr Asn Met Thr Phe Phe Pro Asn Leu Met Gly His
         35                  40                  45

Tyr Asp Gln Ser Ile Ala Ala Val Glu Met Glu His Phe Leu Pro Leu
     50                  55                  60

Ala Asn Leu Glu Cys Ser Pro Asn Ile Glu Thr Phe Leu Cys Lys Ala
 65                  70                  75                  80

Phe Val Pro Thr Cys Ile Glu Gln Ile His Val Val Pro Pro Cys Arg
                85                  90                  95

Lys Leu Cys Glu Lys Val Tyr Ser Asp Cys Lys Lys Leu Ile Asp Thr
            100                 105                 110

Phe Gly Ile Arg Trp Pro Glu Glu Leu Glu Cys Asp Arg Leu Gln Tyr
        115                 120                 125

Cys Asp Glu Thr Val Pro Val Thr Phe Asp Pro His Thr Glu Phe Leu
    130                 135                 140

Gly Pro Gln Lys Lys Thr Glu Gln Val Gln Arg Asp Ile Gly Phe Trp
145                 150                 155                 160

Cys Pro Arg His Leu Lys Thr Ser Gly Gly Gln Gly Tyr Lys Phe Leu
                165                 170                 175

Gly Ile Asp Gln Cys Ala Pro Pro Cys Pro Asn Met Tyr Phe Lys Ser
            180                 185                 190

Asp Glu Leu Glu Phe Ala Lys Ser Phe Ile Gly Thr Val Ser Ile Phe
        195                 200                 205

Cys Leu Cys Ala Thr Leu Phe Thr Phe Leu Thr Phe Leu Ile Asp Val
    210                 215                 220
```

```
Arg Arg Phe Arg Tyr Pro Glu Arg Pro Ile Ile Tyr Tyr Ser Val Cys
225                 230                 235                 240

Tyr Ser Ile Val Ser Leu Met Tyr Phe Ile Gly Phe Leu Leu Gly Asp
                245                 250                 255

Ser Thr Ala Cys Asn Lys Ala Asp Glu Lys Leu Glu Leu Gly Asp Thr
            260                 265                 270

Val Val Leu Gly Ser Gln Asn Lys Ala Cys Thr Val Leu Phe Met Leu
        275                 280                 285

Leu Tyr Phe Phe Thr Met Ala Gly Thr Val Trp Trp Val Ile Leu Thr
    290                 295                 300

Ile Thr Trp Phe Leu Ala Ala Gly Arg Lys Trp Ser Cys Glu Ala Ile
305                 310                 315                 320

Glu Gln Lys Ala Val Trp Phe His Ala Val Ala Trp Gly Thr Pro Gly
                325                 330                 335

Phe Leu Thr Val Met Leu Leu Ala Leu Asn Lys Val Glu Gly Asp Asn
            340                 345                 350

Ile Ser Gly Val Cys Phe Val Gly Leu Tyr Asp Leu Asp Ala Ser Arg
        355                 360                 365

Tyr Phe Val Leu Leu Pro Leu Cys Leu Cys Val Phe Val Gly Leu Ser
    370                 375                 380

Leu Leu Leu Ala Gly Ile Ile Ser Leu Asn His Val Arg Gln Val Ile
385                 390                 395                 400

Gln His Asp Gly Arg Asn Gln Glu Lys Leu Lys Lys Phe Met Ile Arg
                405                 410                 415

Ile Gly Val Phe Ser Gly Leu Tyr Leu Val Pro Leu Val Thr Leu Leu
            420                 425                 430

Gly Cys Tyr Val Tyr Glu Gln Val Asn Arg Ile Thr Trp Glu Ile Thr
        435                 440                 445

Trp Val Ser Asp His Cys Arg Gln Tyr His Ile Pro Cys Pro Tyr Gln
    450                 455                 460

Ala Lys Ala Lys Ala Arg Pro Glu Leu Ala Leu Phe Met Ile Lys Tyr
465                 470                 475                 480

Leu Met Thr Leu Ile Val Gly Ile Ser Ala Val Phe Trp Val Gly Ser
                485                 490                 495

Lys Lys Thr Cys Thr Glu Trp Ala Gly Phe Phe Lys Arg Asn Arg Lys
            500                 505                 510

Arg Asp Pro Ile Ser Glu Ser Arg Arg Val Leu Gln Glu Ser Cys Glu
        515                 520                 525
```

```
Phe Phe Leu Lys His Asn Ser Lys Val Lys His Lys Lys Lys His Tyr
    530                 535                 540

Lys Pro Ser Ser His Lys Leu Lys Val Ile Ser Lys Ser Met Gly Thr
545                 550                 555                 560

Ser Thr Gly Ala Thr Ala Asn His Gly Thr Ser Ala Val Ala Ile Thr
                565                 570                 575

Ser His Asp Tyr Leu Gly Gln Glu Thr Leu Thr Glu Ile Gln Thr Ser
            580                 585                 590

Pro Glu Thr Ser Met Arg Glu Val Lys Ala Asp Gly Ala Ser Thr Pro
        595                 600                 605

Arg Leu Arg Glu Gln Asp Cys Gly Glu Pro Ala Ser Pro Ala Ala Ser
    610                 615                 620

Ile Ser Arg Leu Ser Gly Glu Gln Val Asp Gly Lys Gly Gln Ala Gly
625                 630                 635                 640

Ser Val Ser Glu Ser Ala Arg Ser Glu Gly Arg Ile Ser Pro Lys Ser
                645                 650                 655

Asp Ile Thr Asp Thr Gly Leu Ala Gln Ser Asn Asn Leu Gln Val Pro
            660                 665                 670

Ser Ser Ser Glu Pro Ser Ser Leu Lys Gly Ser Thr Ser Leu Leu Val
        675                 680                 685

His Pro Val Ser Gly Val Arg Lys Glu Gln Gly Gly Gly Cys His Ser
    690                 695                 700

Asp Thr
705
```

<210> 9
<211> 574
<212> PRT
<213> Homo sapiens

<400> 9

```
Met Arg Asp Pro Gly Ala Ala Ala Pro Leu Ser Ser Leu Gly Leu Cys
  1               5                  10                  15

Ala Leu Val Leu Ala Leu Leu Gly Ala Leu Ser Ala Gly Ala Gly Ala
             20                  25                  30

Gln Pro Tyr His Gly Glu Lys Gly Ile Ser Val Pro Asp His Gly Phe
         35                  40                  45

Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln
     50                  55                  60

Thr Ile Leu Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly
 65                  70                  75                  80
```

```
Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Pro
                  85                  90                  95

Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val
             100                 105                 110

Leu Asp Gln Ala Ile Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg
         115                 120                 125

Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Glu
     130                 135                 140

Arg Leu Arg Cys Glu Asn Phe Pro Val His Gly Ala Gly Glu Ile Cys
145                 150                 155                 160

Val Gly Gln Asn Thr Ser Asp Gly Ser Gly Gly Pro Gly Gly Gly Pro
                 165                 170                 175

Thr Ala Tyr Pro Thr Ala Pro Tyr Leu Pro Asp Leu Pro Phe Thr Ala
             180                 185                 190

Leu Pro Pro Gly Ala Ser Asp Gly Arg Gly Arg Pro Ala Phe Pro Phe
         195                 200                 205

Ser Cys Pro Arg Gln Leu Lys Val Pro Pro Tyr Leu Gly Tyr Arg Phe
     210                 215                 220

Leu Gly Glu Arg Asp Cys Gly Ala Pro Cys Glu Pro Gly Arg Ala Asn
225                 230                 235                 240

Gly Leu Met Tyr Phe Lys Glu Glu Glu Arg Arg Phe Ala Arg Leu Trp
                 245                 250                 255

Val Gly Val Trp Ser Val Leu Cys Cys Ala Ser Thr Leu Phe Thr Val
             260                 265                 270

Leu Thr Tyr Leu Val Asp Met Arg Arg Phe Ser Tyr Pro Glu Arg Pro
         275                 280                 285

Ile Ile Phe Leu Ser Gly Cys Tyr Phe Met Val Ala Val Ala His Val
     290                 295                 300

Ala Gly Phe Leu Leu Glu Asp Arg Ala Val Cys Val Glu Arg Phe Ser
305                 310                 315                 320

Asp Asp Gly Tyr Arg Thr Val Ala Gln Gly Thr Lys Lys Glu Gly Cys
                 325                 330                 335

Thr Ile Leu Phe Met Val Leu Tyr Phe Phe Gly Met Ala Ser Ser Ile
             340                 345                 350

Trp Trp Val Ile Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly Met Lys
         355                 360                 365

Trp Gly His Glu Ala Ile Glu Ala Asn Ser Gln Tyr Phe His Leu Ala
     370                 375                 380
```

```
Ala Trp Ala Val Pro Ala Val Lys Thr Ile Thr Ile Leu Ala Met Gly
385                 390                 395                 400

Gln Val Asp Gly Asp Leu Leu Ser Gly Val Cys Tyr Val Gly Leu Ser
                405                 410                 415

Ser Val Asp Ala Leu Arg Gly Phe Val Leu Ala Pro Leu Phe Val Tyr
            420                 425                 430

Leu Phe Ile Gly Thr Ser Phe Leu Leu Ala Gly Phe Val Ser Leu Phe
        435                 440                 445

Arg Ile Arg Thr Ile Met Lys His Asp Gly Thr Lys Thr Glu Lys Leu
    450                 455                 460

Glu Lys Leu Met Val Arg Ile Gly Val Phe Ser Val Leu Tyr Thr Val
465                 470                 475                 480

Pro Ala Thr Ile Val Leu Ala Cys Tyr Phe Tyr Glu Gln Ala Phe Arg
                485                 490                 495

Glu His Trp Glu Arg Thr Trp Leu Leu Gln Thr Cys Lys Ser Tyr Ala
            500                 505                 510

Val Pro Cys Pro Pro Gly His Phe Pro Pro Met Ser Pro Asp Phe Thr
        515                 520                 525

Val Phe Met Ile Lys Tyr Leu Met Thr Met Ile Val Gly Ile Thr Thr
    530                 535                 540

Gly Phe Trp Ile Trp Ser Gly Lys Thr Leu Gln Ser Trp Arg Arg Phe
545                 550                 555                 560

Tyr His Arg Leu Ser His Ser Ser Lys Gly Glu Thr Ala Val
                565                 570
```

<210> 10
<211> 694
<212> PRT
<213> Homo sapiens

<400> 10

```
Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu
  1               5                  10                  15

Ala Leu Leu Gln Arg Ser Ser Gly Ala Ala Ala Ala Ser Ala Lys Glu
             20                  25                  30

Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr
         35                  40                  45

Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu
     50                  55                  60

Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys
 65                  70                  75                  80
```

```
Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro Ile Cys
                 85                  90                  95

Leu Glu Asp Tyr Lys Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu
            100                 105                 110

Arg Ala Lys Ala Gly Cys Ala Pro Leu Met Arg Gln Tyr Gly Phe Ala
        115                 120                 125

Trp Pro Asp Arg Met Arg Cys Asp Arg Leu Pro Glu Gln Gly Asn Pro
    130                 135                 140

Asp Thr Leu Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala
145                 150                 155                 160

Pro Ser Pro Pro Arg Arg Leu Pro Pro Pro Pro Pro Gly Glu Gln Pro
                165                 170                 175

Pro Ser Gly Ser Gly His Gly Arg Pro Pro Gly Ala Arg Pro Pro His
            180                 185                 190

Arg Gly Gly Gly Arg Gly Gly Gly Gly Gly Asp Ala Ala Ala Pro Pro
        195                 200                 205

Ala Arg Gly Gly Gly Gly Gly Gly Lys Ala Arg Pro Pro Gly Gly Gly
    210                 215                 220

Ala Ala Pro Cys Glu Pro Gly Cys Gln Cys Arg Ala Pro Met Val Ser
225                 230                 235                 240

Val Ser Ser Glu Arg His Pro Leu Tyr Asn Arg Val Lys Thr Gly Gln
                245                 250                 255

Ile Ala Asn Cys Ala Leu Pro Cys His Asn Pro Phe Phe Ser Gln Asp
            260                 265                 270

Glu Arg Ala Phe Thr Val Phe Trp Ile Gly Leu Trp Ser Val Leu Cys
        275                 280                 285

Phe Val Ser Thr Phe Ala Thr Val Ser Thr Phe Leu Ile Asp Met Glu
    290                 295                 300

Arg Phe Lys Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Ala Cys Tyr
305                 310                 315                 320

Leu Phe Val Ser Val Gly Tyr Leu Val Arg Leu Val Ala Gly His Glu
                325                 330                 335

Lys Val Ala Cys Ser Gly Gly Ala Pro Gly Ala Gly Gly Ala Gly Gly
            340                 345                 350

Ala Gly Gly Ala Ala Ala Gly Ala Gly Ala Ala Gly Ala Gly Ala Gly
        355                 360                 365

Gly Pro Gly Gly Arg Gly Glu Tyr Glu Glu Leu Gly Ala Val Glu Gln
    370                 375                 380
```

```
His Val Arg Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr Val Val Phe
385                 390                 395                 400

Leu Leu Val Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp Val Ile
                405                 410                 415

Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly Met Lys Trp Gly Asn Glu
            420                 425                 430

Ala Ile Ala Gly Tyr Ser Gln Tyr Phe His Leu Ala Ala Trp Leu Val
        435                 440                 445

Pro Ser Val Lys Ser Ile Ala Val Leu Ala Leu Ser Ser Val Asp Gly
    450                 455                 460

Asp Pro Val Ala Gly Ile Cys Tyr Val Gly Asn Gln Ser Leu Asp Asn
465                 470                 475                 480

Leu Arg Gly Phe Val Leu Ala Pro Leu Val Ile Tyr Leu Phe Ile Gly
                485                 490                 495

Thr Met Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Ser
            500                 505                 510

Val Ile Lys Gln Gln Asp Gly Pro Thr Lys Thr His Lys Leu Glu Lys
        515                 520                 525

Leu Met Ile Arg Leu Gly Leu Phe Thr Val Leu Tyr Thr Val Pro Ala
    530                 535                 540

Ala Val Val Val Ala Cys Leu Phe Tyr Glu Gln His Asn Arg Pro Arg
545                 550                 555                 560

Trp Glu Ala Thr His Asn Cys Pro Cys Leu Arg Asp Leu Gln Pro Asp
                565                 570                 575

Gln Ala Arg Arg Pro Asp Tyr Ala Val Phe Met Leu Lys Tyr Phe Met
            580                 585                 590

Cys Leu Val Val Gly Ile Thr Ser Gly Val Trp Val Trp Ser Gly Lys
        595                 600                 605

Thr Leu Glu Ser Trp Arg Ser Leu Cys Thr Arg Cys Cys Trp Ala Ser
    610                 615                 620

Lys Gly Ala Ala Val Gly Gly Gly Ala Gly Ala Thr Ala Ala Gly Gly
625                 630                 635                 640

Gly Gly Gly Pro Gly Gly Gly Gly Gly Gly Gly Pro Gly Gly Gly Gly
                645                 650                 655

Gly Pro Gly Gly Gly Gly Gly Ser Leu Tyr Ser Asp Val Ser Thr Gly
            660                 665                 670

Leu Thr Trp Arg Ser Gly Thr Ala Ser Ser Val Ser Tyr Pro Lys Gln
        675                 680                 685
```

Met Pro Leu Ser Gln Val
690

<210> 11
<211> 591
<212> PRT
<213> Homo sapiens

<400> 11
Met Ala Val Ala Pro Leu Arg Gly Ala Leu Leu Leu Trp Gln Leu Leu
1 5 10 15

Ala Ala Gly Gly Ala Ala Leu Glu Ile Gly Arg Phe Asp Pro Glu Arg
20 25 30

Gly Arg Gly Ala Ala Pro Cys Gln Ala Val Glu Ile Pro Met Cys Arg
35 40 45

Gly Ile Gly Tyr Asn Leu Thr Arg Met Pro Asn Leu Leu Gly His Thr
50 55 60

Ser Gln Gly Glu Ala Ala Ala Glu Leu Ala Glu Phe Ala Pro Leu Val
65 70 75 80

Gln Tyr Gly Cys His Ser His Leu Arg Phe Phe Leu Cys Ser Leu Tyr
85 90 95

Ala Pro Met Cys Thr Asp Gln Val Ser Thr Pro Ile Pro Ala Cys Arg
100 105 110

Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu Gln
115 120 125

Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro Thr
130 135 140

Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Ala Thr
145 150 155 160

Ala Gly Pro Ala Glu Pro His Lys Gly Leu Gly Met Leu Pro Val Ala
165 170 175

Pro Arg Pro Ala Arg Pro Pro Gly Asp Leu Gly Pro Gly Ala Gly Gly
180 185 190

Ser Gly Thr Cys Glu Asn Pro Glu Lys Phe Gln Tyr Val Glu Lys Ser
195 200 205

Arg Ser Cys Ala Pro Arg Cys Gly Pro Gly Val Glu Val Phe Trp Ser
210 215 220

Arg Arg Asp Lys Asp Phe Ala Leu Val Trp Met Ala Val Trp Ser Ala
225 230 235 240

Leu Cys Phe Phe Ser Thr Ala Phe Thr Val Leu Thr Phe Leu Leu Glu
245 250 255

```
Pro His Arg Phe Gln Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Met
            260                 265                 270

Cys Tyr Asn Val Tyr Ser Leu Ala Phe Leu Ile Arg Ala Val Ala Gly
        275                 280                 285

Ala Gln Ser Val Ala Cys Asp Gln Glu Ala Gly Ala Leu Tyr Val Ile
    290                 295                 300

Gln Glu Gly Leu Glu Asn Thr Gly Cys Thr Leu Val Phe Leu Leu Leu
305                 310                 315                 320

Tyr Tyr Phe Gly Met Ala Ser Ser Leu Trp Trp Val Val Leu Thr Leu
                325                 330                 335

Thr Trp Phe Leu Ala Ala Gly Lys Lys Trp Gly His Glu Ala Ile Glu
            340                 345                 350

Ala His Gly Ser Tyr Phe His Met Ala Ala Trp Gly Leu Pro Ala Leu
        355                 360                 365

Lys Thr Ile Val Ile Leu Thr Leu Arg Lys Val Ala Gly Asp Glu Leu
    370                 375                 380

Thr Gly Leu Cys Tyr Val Ala Ser Thr Asp Ala Ala Ala Leu Thr Gly
385                 390                 395                 400

Phe Val Leu Val Pro Leu Ser Gly Tyr Leu Val Leu Gly Ser Ser Phe
                405                 410                 415

Leu Leu Thr Gly Phe Val Ala Leu Phe His Ile Arg Lys Ile Met Lys
            420                 425                 430

Thr Gly Gly Thr Asn Thr Glu Lys Leu Glu Lys Leu Met Val Lys Ile
        435                 440                 445

Gly Val Phe Ser Ile Leu Tyr Thr Val Pro Ala Thr Cys Val Ile Val
    450                 455                 460

Cys Tyr Val Tyr Glu Arg Leu Asn Met Asp Phe Trp Arg Leu Arg Ala
465                 470                 475                 480

Thr Glu Gln Pro Cys Ala Ala Ala Ala Gly Pro Gly Gly Arg Arg Asp
                485                 490                 495

Cys Ser Leu Pro Gly Gly Ser Val Pro Thr Val Ala Val Phe Met Leu
            500                 505                 510

Lys Ile Phe Met Ser Leu Val Val Gly Ile Thr Ser Gly Val Trp Val
        515                 520                 525

Trp Ser Ser Lys Thr Phe Gln Thr Trp Gln Ser Leu Cys Tyr Arg Lys
    530                 535                 540

Ile Ala Ala Gly Arg Ala Arg Ala Lys Ala Cys Arg Ala Pro Gly Ser
545                 550                 555                 560
```

```
Tyr Gly Arg Gly Thr His Cys His Tyr Lys Ala Pro Thr Val Val Leu
                565                 570                 575

His Met Thr Lys Thr Asp Pro Ser Leu Glu Asn Pro Thr His Leu
            580                 585                 590
```

<210> 12
<211> 581
<212> PRT
<213> Homo sapiens

<400> 12

```
Met Gln Arg Pro Gly Pro Arg Leu Trp Leu Val Leu Gln Val Met Gly
  1               5                  10                  15

Ser Cys Ala Ala Ile Ser Ser Met Asp Met Glu Arg Pro Gly Asp Gly
             20                  25                  30

Lys Cys Gln Pro Ile Glu Ile Pro Met Cys Lys Asp Ile Gly Tyr Asn
         35                  40                  45

Met Thr Arg Met Pro Asn Leu Met Gly His Glu Asn Gln Arg Glu Ala
     50                  55                  60

Ala Ile Gln Leu His Glu Phe Ala Pro Leu Val Glu Tyr Gly Cys His
 65                  70                  75                  80

Gly His Leu Arg Phe Phe Leu Cys Ser Leu Tyr Ala Pro Met Cys Thr
                 85                  90                  95

Glu Gln Val Ser Thr Pro Ile Pro Ala Cys Arg Val Met Cys Glu Gln
            100                 105                 110

Ala Arg Leu Lys Cys Ser Pro Ile Met Glu Gln Phe Asn Phe Lys Trp
        115                 120                 125

Pro Asp Ser Leu Asp Cys Arg Lys Leu Pro Asn Lys Asn Asp Pro Asn
    130                 135                 140

Tyr Leu Cys Met Glu Ala Pro Asn Asn Gly Ser Asp Glu Pro Thr Arg
145                 150                 155                 160

Gly Ser Gly Leu Phe Pro Pro Leu Phe Arg Pro Gln Arg Pro His Ser
                165                 170                 175

Ala Gln Glu His Pro Leu Lys Asp Gly Gly Pro Gly Arg Gly Gly Cys
            180                 185                 190

Asp Asn Pro Gly Lys Phe His His Val Glu Lys Ser Ala Ser Cys Ala
        195                 200                 205

Pro Leu Cys Thr Pro Gly Val Asp Val Tyr Trp Ser Arg Glu Asp Lys
    210                 215                 220

Arg Phe Ala Val Val Trp Leu Ala Ile Trp Ala Val Leu Cys Phe Phe
225                 230                 235                 240
```

```
Ser Ser Ala Phe Thr Val Leu Thr Phe Leu Ile Asp Pro Ala Arg Phe
                245                 250                 255

Arg Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Met Cys Tyr Cys Val
            260                 265                 270

Tyr Ser Val Gly Tyr Leu Ile Arg Leu Phe Ala Gly Ala Glu Ser Ile
        275                 280                 285

Ala Cys Asp Arg Asp Ser Gly Gln Leu Tyr Val Ile Gln Glu Gly Leu
    290                 295                 300

Glu Ser Thr Gly Cys Thr Leu Val Phe Leu Val Leu Tyr Tyr Phe Gly
305                 310                 315                 320

Met Ala Ser Ser Leu Trp Trp Val Val Leu Thr Leu Thr Trp Phe Leu
                325                 330                 335

Ala Ala Gly Lys Lys Trp Gly His Glu Ala Ile Glu Ala Asn Ser Ser
            340                 345                 350

Tyr Phe His Leu Ala Ala Trp Ala Ile Pro Ala Val Lys Thr Ile Leu
        355                 360                 365

Ile Leu Val Met Arg Arg Val Ala Gly Asp Glu Leu Thr Gly Val Cys
    370                 375                 380

Tyr Val Gly Ser Met Asp Val Asn Ala Leu Thr Gly Phe Val Leu Ile
385                 390                 395                 400

Pro Leu Ala Cys Tyr Leu Val Ile Gly Thr Ser Phe Ile Leu Ser Gly
                405                 410                 415

Phe Val Ala Leu Phe His Ile Arg Arg Val Met Lys Thr Gly Gly Glu
            420                 425                 430

Asn Thr Asp Lys Leu Glu Lys Leu Met Val Arg Ile Gly Leu Phe Ser
        435                 440                 445

Val Leu Tyr Thr Val Pro Ala Thr Cys Val Ile Ala Cys Tyr Phe Tyr
    450                 455                 460

Glu Arg Leu Asn Met Asp Tyr Trp Lys Ile Leu Ala Ala Gln His Lys
465                 470                 475                 480

Cys Lys Met Asn Asn Gln Thr Lys Thr Leu Asp Cys Leu Met Ala Ala
                485                 490                 495

Ser Ile Pro Ala Val Glu Ile Phe Met Val Lys Ile Phe Met Leu Leu
            500                 505                 510

Val Val Gly Ile Thr Ser Gly Met Trp Ile Trp Thr Ser Lys Thr Leu
        515                 520                 525

Gln Ser Trp Gln Gln Val Cys Ser Arg Arg Leu Lys Lys Lys Ser Arg
    530                 535                 540
```

Arg Lys Pro Ala Ser Val Ile Thr Ser Gly Gly Ile Tyr Lys Lys Ala
545 550 555 560

Gln His Pro Gln Lys Thr His His Gly Lys Tyr Glu Ile Pro Ala Gln
565 570 575

Ser Pro Thr Cys Val
580